7310.6Bacon Yield Determinations5/30/90

OPI: S&T/PPID

BACON YIELD DETERMINATIONS

I. PURPOSE

This directive provides methods to inspectors by which they may objectively verify that yields are consistent with legal requirements. This directive does not apply to dry cured bacon.

II. CANCELLATION FSIS Notice 15-86, dated 3/14/86.

III. (RESERVED)

IV. REFERENCES

Federal Meat Inspection Act (FMIA) Section 1, m(8) and n(7).
MPI Regulations, Sections 318.2, 318.7(b)(1) and (2) and 319.107.
FSIS Directive 8800.1, dated 11/1/89.
FSIS Directive 8820.1., dated 9/21/88.
FSIS Directive 10,520.1, Rev. 1, dated 8/7/89.

V. POLICY

A. As required by MPI Regulations, FSIS employees, as scheduled through the Performance Based Inspection System (PBIS), inspect cured pork bellies ready for slicing and labeling to ensure that such product is not adulterated or misbranded. Section 319.107 of the regulations state that the weight of cured pork bellies ready for slicing and labeling as "Bacon" shall not exceed the weight of the fresh uncured pork bellies. Bacon yield determinations are made by weighing pork bellies to determine that the average finished weight does not exceed the average "green weight." The green weight is the weight of the fresh pork bellies, normally skinned and trimmed,prior to pumping with curing solution; green weight may be calculated from pork bellies with the skin on, but in such cases the weight of the skin must be added also to the finished product weight to determine compliance with the yield requirements. Yield determinations preclude, among other things, economic fraud by overpumping of the product resulting in excess added water.

B. Procedures for monitoring bacon yield set forth in this directive apply when the establishment does not have an approved quality control (QC) program. Establishments may submit a QC program for bacon processing which establishes alternate means of monitoring bacon yield. Adherence to an approved QC program is used by inspectors in lieu of the monitoring procedures in this directive.

C. The effectiveness of processing controls in ensuring the cured pork bellies are in compliance with the bacon yield requirements shall be

established as follows:

1. If there is an approved QC program which includes bacon yield, by evaluation and verification of the QC program for bacon yield.

2. If there is no approved QC program, by weighing pork bellies produced under similar conditions (See Paragraph VII.B.2. c. (1).) as samples to determine that the average finished weight does not exceed the average green weight.

3. If there is no approved QC program and the lot size is 50 pork bellies or less, by weighing 100 percent of the finished pork bellies.

VI. DEFINITIONS

For purposes of this directive, the following definitions shall apply:

A. Finished weight. The final weight of cured pork bellies after processing.

B. Green Weight. The weight of fresh pork bellies which may or may not have been skinned and trimmed prior to pumping with curing solution.

C. Lot. A shift's production (or portion of production as determined by the establishment) of one weight range of pork bellies processed under one basic formula or method of preparation that is separately identifiable.

D. Percent yield. The weight of cured pork bellies ready for slicing divided by the "green" weight times 100.

E. Previous yield difference. The weight of the latest lot of cured pork bellies after processing.

F. Standard yield. The weight of cured pork bellies ready for slicing and labeling not exceeding the weight of the fresh uncured pork bellies.

G. Value added. A calculated numerical value derived from the percent yield (See Paragraph VII.), allowing for sampling variability and analytical error.

H. Yield. The weight of cured pork bellies ready for slicing.

I. Yield difference value. A running tally representing the successive addition of the value added to the difference between the actual yield and the standard yield.

J. Yield verification. A formula-based yield comparing green weight to the finished weight. (See Paragraph VII.B.2.)

VII. RESPONSIBILITIES

A. Establishments:

1. Establishments must control the process through process

monitoring to assure that the finished product is in compliance with the requirements of MPI regulations 318.2, 318.7, and 319.107, and

2. Establishments should submit their processing procedures to the inspector-in-charge on FSIS Form 10,520-1, Pumped Bacon Sampling Program-Nitrosamine Analysis Process Chart. (Reference FSIS Directive 10,520.1.)

B. FSIS Inspector

1. General. The inspector will:

a. Maintain Yield Difference Logs or FSIS Form 7310-3, Bacon Yield Difference Log (see attachment 2), on bacon yield for each lot inspected at the establishment, and

b. Implement the frequency of bacon yield compliance monitoring as generated by the PBIS (Reference FSIS Directive 8800.1.)

2. Yield Verification. The inspector will:

a. Randomly select 50 uncured pork bellies of the same weight range category (e.g., 10-12 pounds) which have been skinned and trimmed prior to pumping and then determine the total weight;

b. Randomly select pork bellies produced under similar conditions from which green bellies were drawn (e.g., 10-12 pounds) that have also previously undergone skinning/trimming prior to pumping and determine the total weight.

c. Determine yield by comparing the weight of the uncured pork bellies to the finished weight (cured pork bellies ready for slicing) using the following formula:

$$\text{Percent yield} = \frac{\text{Finished weight}}{\text{Green weight}} \times 100$$

(1). Comparison of green weight to finished weight does not have to be made on the same uncured pork bellies as long as a comparison is done on pork bellies produced under similar conditions, e.g., if any trimming or removal of any portion of pork bellies occurs after pumping, weight of these trimmings must be added when determining the finished weight. Also, if the green weight must be calculated from pork bellies with the skin on, finished weight similarly must include the weight of the skin.

(2). The amount of time that the product is held in the cooler is determined by the establishment's processing procedures; refer to completed FSIS Form 10,520-1 for that establishment.

(3). For additional instructions if skinning or trimming practices prevent following the procedures in this directive, contact the regional office through appropriate channels.

3. Maintaining Yield Difference Charts.

a. A Yield Difference Log as shown in Attachment 2 is used by the inspector to determine whether plant controls meet MPI Regulations, 319.107. (See Attachment 2).

b. Yield Difference - the addition of the difference between the actual yield and the regulatory requirement of no more than 100 percent- is calculated using the following formula:

Value Added + previous Yield Difference = New (Current) Yield Difference.

The first yield difference is the Value Added.

c. Attachment 1 will be used for determining the Value Added for various percent yields and Attachment 2 shows an example of a Bacon Yield Difference Log, a running tally, which the inspector creates to monitor compliance. The tally will be maintained on FSIS Form 7310-3, Bacon Yield Difference Log, Attachment 2. Note that negative values may not exceed -2.00.

VIII. INTERPRETATION OF BACON YIELD DIFFERENCES

A. When the yield difference value is less than 3.00, the bacon is considered to be in compliance with the regulations.

B. When the yield difference value is equal to or greater than 3.00, subsequent bacon lots shall be retained.

1. Establishments will be notified each time official control actions are taken. As identified in FSIS Directive 8820.1, Corrective Action System, establishment management must propose corrective action for the lot(s) of adulterated bacon officially controlled and also actions to control the bacon processing procedure which will prevent recurrence of bacon lots exceeding the weight of fresh uncured pork belly lots.

2. Verification of the establishments' proposed corrective action on the noncompliant officially controlled lot(s) will be accomplished using the procedures identified in Paragraph VII. of this directive. Individual lots are in compliance when the percent yield of the 50 bellies is equal to or less than 100 percent.

3. Verification of the establishments' proposed preventive actions will include holding and testing the next five consecutive production lots to assure the value added from each lot results in a yield difference of less than 3.00.

4. FSIS inspectors should initiate procedures identified under Subparagraph VIII. B. above and also procedures identified under Paragraph IX. of FSIS Directive 8820.1 when establishments repeatedly have yield

difference values equal to or greater than 3.0O.

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Attachments
1 - Bacon Yield Difference Chart
2 - FSIS Form 7310-3, Bacon Yield Difference Log and Example
(Reference paper copy of directive for the form.)
3. FSIS Form 10,520-1, Pumped Bacon Sampling Program-Nitrosamine Analysis Process Chart
(Reference paper copy of directive for the form.)

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ATTACHMENT 1

Bacon Yield Difference Chart

Percent Yield	Value To Be Added To Yield Difference
90	-2.00 *
91	-2.00
92	-2.00
93	-2.00
94	-1.75
95	-1.50
96	-1.25
97	-1.00
98	-0.75
99	-0.50
100	-0.25
101	-0.00
102	0.25
103	0.50
104	0.75
105	1.00
106	1.25
107	1.50
108	1.75
109	2.00
110	2.25
111	2.50
112	2.75
113	3.00
114	3.25
115	3.50
116	3.75

117	4.00
118	4.25
119	4 50
120	4.75

* Maximum Negative Value = -2.00

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ATTACHMENT 2

Example-Bacon Yield Difference Log

PercentYield	Value Added*	Yield Differences**
100	-0.25	-0.25
101	0.00	-0.25
99	-0.50	-0.75
103	0.50	-0.25
105	1.00	0.75
91	-2.50*	-1.25
102	0.25	-1.00
104	0.75	-0.25
105	1.00	0.75
110	2.25	3.00**
109	2.00	5.00

*Maximum value that can be added = -2.00
**Action level = 3.00

An example of a running tally (log) would be: If the first yield test was 100 percent, the Yield Difference would start at -0.25. If the next test resulted in a yield of 101 percent, the Value Added to the Yield Difference is 0.00 and the new (current) Yield Difference would be -0.25 (i.e., -0.25 + 0.00 = -0.25)

HELPFUL HINT: When using a calculator, always enter the proper plus or minus sign before each entry. For example, Yield Difference of -0.25 plus 1.00 would be calculated as:

Enter minus (-) 0.25
Enter plus (+) 1.00
Press "=" symbol, gives Yield Difference of 0.75.